

JANUARY/JANVIER

REVIEW / SYNTHÈSE

- Janusz Janiszewski, Jan D. Huizinga, and Michael G. Blennerhassett** Mast cell ionic channels: significance for stimulus-secretion coupling 1

ARTICLES

- Mitchell L. Halperin and Ching-Bun Chen** Energy turnover and the production of ammonium by the kidney: effect of hypernatremia 8
- Eve L. Warner, Franco Galasso, Carl I. Thompson, and Francis L. Belloni** Vasodilative and anti-adrenergic effects of adenosine in diabetic rat hearts 13
- Theresa C. Peterson and Ian R. Brown** Cysteamine in combination with *N*-acetylcysteine prevents acetaminophen-induced hepatotoxicity 20
- Hans P. Baer, A. Moorji, P. O. J. Ogbunode, and V. Serignese** Sodium-dependent nucleoside transport in mouse lymphocytes, human monocytes, and hamster macrophages and peritoneal exudate cells 29
- J. K. McLean, P. Sathasivam, K. MacNaughton, and T. E. Graham** Cardiovascular and norepinephrine responses of men and women to two cold pressor tests 36
- E. E. Daniel, J. Jury, R. Serio, and L. P. Jager**  $K^+$ -channel blockers do not decrease acetylcholine depolarizations in canine trachealis 43
- Jean-François Landry, Jean-Pierre Després, Denis Prud'homme, Benoît Lamarche, Angelo Tremblay, André Nadeau, and Claude Bouchard** A study of some potential correlates of the hypotensive effects of prolonged submaximal exercise in normotensive men 53
- J. Noireaud, S. Baudet, C. Huchet, and C. Leoty** Effects of reduced external sodium concentration and multivalent cations on caffeine contractures in young ferret atrial trabeculae 60
- K. Ravi and C. T. Kappagoda** Responses of pulmonary C-fibre and rapidly adapting receptor afferents to pulmonary congestion and edema in dogs 68
- Richard W. Lerner, Gary D. Lopaschuk, and Peter M. Olley** Prostaglandin  $E_2$  receptors in the heart are coupled to inhibition of adenylyl cyclase via a pertussis toxin sensitive G protein 77
- Song-Gui Yang, Mahmoud Saifeddine, and Morley D. Hollenberg** Tyrosine kinase inhibitors and the contractile action of epidermal growth factor — urogastrone and other agonists in gastric smooth muscle 85
- A. Malootian, G. S. Friedrichs, and G. F. Merrill** Flow-dependent antiarrhythmic properties of ammonia during catecholamine-driven ventricular tachycardia 94
- Savio W. T. Cheng and William G. North** Absence of negative feedback by oxytocin on release from magnocellular neurones in conscious rats 100
- Yong Keun Kim, Jin Sup Jung, and Sang Ho Lee** Dicarboxylate transport in renal basolateral and brush-border membrane vesicles 106

BRIEF REPORTS / RAPPORTS BREFS

- D. J. Leddin** Characterization of small intestinal water, sodium, and potassium transport and morphology in the pig 113
- Maria Touraki and Antigone Lazou** Protective effect of adenosine against a calcium paradox in the isolated frog heart 115

Skeletal Muscle Metabolism Symposium / Métabolisme du muscle squelettique

Minaki, Ontario, Canada

September 29, 1990 / le 29 septembre 1990

- Arend Bonen** Introduction to the Skeletal Muscle Metabolism Symposium 122
- Jan Gorski** Muscle triglyceride metabolism during exercise 123
- T. E. Graham and D. A. MacLean** Ammonia and amino acid metabolism in human skeletal muscle during exercise 132
- John C. McDermott and Arend Bonen** Glyconeogenic and oxidative lactate utilization in skeletal muscle 142
- Wade S. Parkhouse** Regulation of skeletal muscle metabolism by enzyme binding 150
- Lawrence L. Spriet** Anaerobic metabolism in human skeletal muscle during short-term, intense activity 157

Instructions to authors vii

Recommandations aux auteurs ix

## FEBRUARY/FÉVRIER

## SURVEY REVIEW / SYNTHÈSE D'ENSEMBLE

- Nobuharu Yamaguchi** Sympathoadrenal system in neuroendocrine control of glucose: mechanisms involved in the liver, pancreas, and adrenal gland under hemorrhagic and hypoglycemic stress 167

## ARTICLES

- Elaine Bédard and Catherine E. Morris** Channels activated by stretch in neurons of a helix snail 207
- Stephanie W. Y. Ma and Edward Preston** Disparate effects of fenfluramine on thermogenesis in brown adipose tissue in the rat 214
- David Newman, John M. Herre, Michael Chin, Melvin M. Scheinman, Michael Franz, and Bertram Katzung** Effects of sympathetic stimulation on use dependence of lidocaine, mexiletine, and quinidine in an intact canine model 219
- Toshiharu Oba, Takako Aoki, Aiping Lu, and Mamoru Yamaguchi** Partial inhibition of skeletal muscle contraction by dantrolene sodium and its modification with perchlorate and Bay K 8644 225
- Linong Cheng and Andrew J. Rankin** Problems associated with the measurement of mean circulatory filling pressure by the atrial balloon technique in anaesthetized rats 233
- Nicholas S. Gantenberg and Gilbert R. Hageman** Cocaine-enhanced arrhythmogenesis: neural and nonneural mechanisms 240
- L. C. Schlichter** Nonselective cation channels in intact human T lymphocytes 247
- Manuel Martínez-Padrón, William R. Gray, and Ken Lukowiak** Conopressin G, a molluscan vasopressin-like peptide, alters gill behaviors in *Aplysia* 259
- Debananda Pati and Hamid R. Habibi** Characterization of gonadotropin-releasing hormone (GnRH) receptors in the ovary of common carp (*Cyprinus carpio*) 268
- Brian R. MacIntosh, Philip Posner, John Lobo, and Randy Harms** Rat atrial muscle responses with caffeine: dose-response, force frequency, and postrest contractions 275
- Jia Wang and Kenneth M. Johnson** Arcaine and magnesium inhibition of the NMDA receptor ionophore complex: Evidence for distinct voltage-dependent sites 283
- Louis W. C. Liu, Edwin E. Daniel, and Jan D. Huizinga** Excitability of canine colon circular muscle disconnected from the network of interstitial cells of Cajal 289
- Peter B. Canham, Peter Whittaker, Sharon E. Barwick, and Monika E. Schwab** Effect of pressure on circumferential order of adventitial collagen in human brain arteries 296

## RAPID COMMUNICATIONS / COMMUNICATIONS RAPIDES

- Valérie Crépel, Kresimir Krnjević, and Yehezkel Ben-Ari** Glibenclamide depresses the slowly inactivating outward current ( $I_D$ ) in hippocampal neurons 306
- Gerald S. Marks, Brian E. McLaughlin, Kanji Nakatsu, and James F. Brien** Direct evidence for nitric oxide formation from glyceryl trinitrate during incubation with intact bovine pulmonary artery 308

## MARCH/MARS

## The 1991 Merck Frosst Award / (Le prix Merck Frosst 1991)

- Susan P. C. Cole** Multidrug resistance in small cell lung cancer 313

## ARTICLES

- Pawel M. Kindler, Sepideh Ziabakhsh, and Anthony M. Perks** Effects of cAMP, its analogues, and forskolin on lung fluid production by *in vitro* lung preparations from fetal guinea pigs 330
- Olalekan E. Odeleye, Maria C. Lopez, Bruce T. Smith, Cleamond D. Eskelson, and Ronald R. Watson** Cocaine hepatotoxicity during protein undernutrition of retrovirally infected mice 338
- J. M. Langlands and I. W. Rodger** The effect of methacholine and histamine on cyclic AMP-dependent protein kinase activity in the guinea-pig isolated trachea 344
- Ping Wang, Mian Zhou, M. Waheed Rana, Gurdev Singh, Zheng F. Ba, Alfred Ayala, and Irshad H. Chaudry** ATP-MgCl<sub>2</sub> restores microcirculation following trauma and severe hemorrhage 349
- Nobuyoshi Sakai, Michael G. Blennerhassett, and Robert E. Garfield** Intracellular cyclic AMP concentration modulates gap junction permeability in parturient rat myometrium 358
- L. C. Schlichter** Acute exposure to human interferon- $\alpha$  affects ion currents in human natural killer cells 365
- Gordon T. Bolger, Francine Liard, Michel Garneau, and Jorge Jaramillo** Characterization of intestinal smooth muscle responses and binding sites for endothelin 377
- R. Tardif, G. L. Plaa, and J. Brodeur** Influence of various mixtures of inhaled toluene and xylene on the biological monitoring of exposure to these solvents in rats 385

- Eric Rousseau, Janet Pinkos, and Diane Savaria** Functional sensitivity of the native skeletal  $\text{Ca}^{2+}$ -release channel to divalent cations and the Mg-ATP complex 394

## BRIEF REPORTS / RAPPORTS BREFS

- Seon H. Shin and John S. Elce** The effects of dopamine on prolactin mRNA levels in rat pituitary cells in culture 403
- Peter B. Frappell, Andrea Dotta, and Jacopo P. Mortola** Metabolism during normoxia, hyperoxia, and recovery in newborn rats 408

## APRIL/AVRIL

## The 1991 Borden Award Lecture / (La Conférence Borden 1991)

- Emile Levy** Selected aspects of intraluminal and intracellular phases of intestinal fat absorption 413

## ARTICLES

- D. A. MacLean, L. L. Spriet, and T. E. Graham** Plasma amino acid and ammonia responses to altered dietary intakes prior to prolonged exercise in humans 420
- Truls Myrnes and Terje S. Larsen** Glycogen consumption in hypoxic rat cardiomyocytes 428
- Thanh-Truc Luong, Guylain Boulay, and Gaétan Guillemette** Study on the stereoselectivity of inositol 1,4,5-trisphosphate recognition sites of bovine adrenal cortex 434
- Bruce K. Rubin, Chris I. Cheeseman, Sita Gourishankar, and Malcolm King** Is there a seasonal variation in mucus transport and nutrient absorption in the leopard frog? 442
- H. Morello, L. Caligaris, B. Haymal, and S. Taleisnik** Daily variations in the sensitivity of proestrous LH surge in the inhibitory effect of intraventricular injection of 5-HT or GABA in rats 447
- Esther A. Wilczynski, Baoxue Yuan, and Frans H. H. Leenen** Dietary sodium restriction and the development of two-kidney, one-clip hypertension in young versus adult rats 452

## BRIEF REPORT / RAPPORT BREF

- Issei Takayanagi, Mitsutoshi Satoh, Noriko Kokubu, and Teruko Kato** Relationship between potency of L-isoprenaline and  $\beta$ -adrenoceptor density estimated in single cells from tracheal smooth muscles of guinea pigs of different ages 458
- Thomas W. Hurley, William E. Dale, and Michael J. Rovetto** Differing significance of  $\text{Na}^+ - \text{Ca}^{2+}$  exchange in the regulation of cytosolic  $\text{Ca}^{2+}$  in rat exocrine gland acini and cardiac myocytes 461

SYMPOSIA OF THE CANADIAN FEDERATION OF BIOLOGICAL SOCIETIES  
SYMPOSIUMS DE LA FÉDÉRATION CANADIENNE DES SOCIÉTÉS DE BIOLOGIESmooth Muscle Symposium  
(Symposium sur le muscle lisse)

Kingston, Ontario, Canada  
June 8, 1991 / le 8 juin 1991

- C. R. Triggle and M. W. Wolowyk** Introduction to the Smooth Muscle Symposium 468
- E. E. Daniel** Developments in the study of smooth muscle research: reflections on 42 years 469
- R. E. Garfield, G. Thilander, M. G. Blennerhassett, and N. Sakai** Are gap junctions necessary for cell-to-cell coupling of smooth muscle?: an update 481
- Nicholas Sperelakis, Yoshihito Inoue, and Yusuke Ohya** Fast  $\text{Na}^+$  channels in smooth muscle from pregnant rat uterus 491
- Chiu-Yin Kwan** Signal transduction in smooth muscle as studied by the subcellular membrane approach 501
- Qian Chen, Mark Cannell, and Cornelis van Breemen** The superficial buffer barrier in vascular smooth muscle 509
- N. L. Stephens, C. Y. Seow, A. J. Halayko, and H. Jiang** The biophysics and biochemistry of smooth muscle contraction 515

Structural and Functional Changes of Smooth Muscle in Hypertension  
(Altérations fonctionnelles et structurales du muscle lisse durant l'hypertension)

Kingston, Ontario, Canada  
June 9, 1991 / le 9 juin 1991

- R. M. K. W. Lee and C. Y. Kwan** Introduction to the Symposium on Structural and Functional Changes of Smooth Muscle in Hypertension 534
- Mary E. Todd** Hypertensive structural changes in blood vessels: Do endothelial cells hold the key? 536
- John S. Smeda** Cerebral vascular changes associated with hemorrhagic stroke in hypertension 552
- Johanne Tremblay, Vratislav Hadrava, Ursula Kruppa, Toshihiko Hashimoto, and Pavel Hamet** Enhanced growth-dependent expression of  $\text{TGF}\beta_1$  and *hsp70* genes in aortic smooth muscle cells from spontaneously hypertensive rats 565

<b>Stephen C. Pang and Shannon L. Venance</b>	Cultured smooth muscle approach in the study of hypertension	573
<b>Eef Harmsen and Frans H. H. Leenen</b>	Dietary sodium induced cardiac hypertrophy	580

**Force Generation in Airway Smooth Muscle: Morphological and Biochemical Basis for Comparisons**  
(Production de force dans le muscle lisse des voies aériennes : bases biochimiques, morphologiques et comparaisons)

Kingston, Ontario, Canada  
June 10, 1991 / le 10 juin 1991

<b>J. T. Fisher</b>	Introduction to the Symposium on Force Generation in Airway Smooth Muscle: Morphological and Biochemical Basis for Comparisons	588
<b>John T. Fisher</b>	Airway smooth muscle contraction at birth: in vivo versus in vitro comparisons to the adult	590
<b>J. G. Martin, A. Opazo-Saez, T. Du, R. Tepper, and D. H. Eidelman</b>	In vivo airway reactivity: predictive value of morphological estimates of airway smooth muscle	597
<b>Philip Robinson, Mitsushi Okazawa, Tony Bai, and Peter Paré</b>	In vivo loads on airway smooth muscle: the role of noncontractile airway structures	602
<b>M. P. Sparrow, P. K. McFawn, T. I. Omari, and H. W. Mitchell</b>	Activation of smooth muscle in the airway wall, force production, and airway narrowing	607
<b>Richard W. Mitchell, Thomas M. Murphy, and Alan R. Leff</b>	Physiological mechanisms mediating enhanced force generation during development and immune sensitization	615
<b>E. E. Daniel, A. P. Abela, L. J. Janssen, and P. M. O'Byrne</b>	Effects of inflammatory mediators on canine airway neuromuscular function	624
<b>N. L. Stephens, A. Halayko, and H. Jiang</b>	Normalization of contractile parameters in canine airway smooth muscle: morphological and biochemical	635

MAY/MAI

ARTICLES

<b>L. N. Peterson, S. Mathur, and J. S. Borzecki</b>	Reset of the osmotic threshold for vasopressin in rats fed a low NaCl, K-free diet	645
<b>Douglas W. Zochodne and Lam T. Ho</b>	Normal blood flow but lower oxygen tension in diabetes of young rats: microenvironment and the influence of sympathectomy	651
<b>Lionie R. Empey, Keith Walker, and Richard N. Fedorak</b>	Indomethacin worsens and a leukotriene biosynthesis inhibitor accelerates mucosal healing in rat colitis	660
<b>S. C. Cha, G. W. Aberdeen, B. S. Nuwayhid, and E. W. Quillen, Jr.</b>	Influence of pregnancy on mean systemic filling pressure and the cardiac function curve in guinea pigs	669
<b>Mary B. Engler</b>	Effect of omega-3 fatty acids, docosahexaenoic and eicosapentaenoic, on norepinephrine-induced contractions	675
<b>Hong Xiang and John H. McNeill</b>	Influence of arachidonic acid metabolites on cardiac $\alpha_1$ -adrenoceptor responses in diabetic rats	680
<b>Pedro D'Orleans-Juste, Jane A. Mitchell, Elizabeth G. Woods, Markus Hecker, and John R. Vane</b>	Comparison of the release of vasoactive factors from venous and arterial bovine cultured endothelial cells	687
<b>Martín Ansaldo, María Cristina Damasco, María Silvina de Lavallaz, Carlos Pedro Lantos, and Gerhard Malnic</b>	Role of corticosteroids in distal acidification of amiloride-treated rats	695
<b>Anne Riesselmann, Andreas Baron, Melvin J. Fregly, and Patricia van Bergen</b>	Hypertension during chronic exposure to cold: comparison between Sprague-Dawley and Long-Evans strains	701

BRIEF REPORTS / RAPPORTS BREFS

<b>Ethel L. B. Novelli, Ney L. Rodrigues, Bartolomé O. Ribas, and Paulo R. Curi</b>	Intratracheal injection of nickel chloride and copper-zinc superoxide dismutase activity in lung of rats	709
<b>H. Zhang, B. Weir, M. Doi, H. Kasuya, and D. Cook</b>	Relaxant effects on iloprost in canine cerebral artery	712
<b>Aly Abdelrahman and Catherine C. Y. Pang</b>	Competitive antagonism of pressor responses to angiotensin II and angiotensin III by the angiotensin II-1 receptor ligand losartan	716
<b>Michael J. Rieder, Monica Mask, and Ingrid A. Bird</b>	Production of tumour necrosis factor by cells exposed to sulphonamide reactive metabolites	719
<b>D. D. Smyth, J. F. Templeton, V. P. Sashi Kumar, Y. Yan, W. Widajewicz, and F. S. LaBella</b>	Digitaloid pregnanes promote potassium-sparing diuresis in the guinea pig	723
<b>Cristina E. Carnovale, Viviana A. Catania, Juan A. Monti, and Maria C. Carrillo</b>	Differential effects of blood insulin levels on microsomal enzyme activities from hepatic and extrahepatic tissues of male rats	727

SYMPOSIUM OF THE SOCIETY FOR NEUROSCIENCE  
SYMPOSIUM DE LA SOCIÉTÉ POUR NEUROSCIENCE

**Neuronal Regulation of Renal Function: A Model System for Nervous System Interactions**  
(Régulation neuronale de la fonction rénale : Un modèle pour l'étude des interactions dans le système nerveux)

St. Louis, Mo., U.S.A.

November 1, 1990 / le 1 novembre 1990

<b>J. Michael Wyss</b>	Introduction to Neuronal Regulation of Renal Function: A Model System for Nervous System Interactions	<b>733</b>
<b>Luciano Barajas, Li Liu, and Kenneth Powers</b>	Anatomy of the renal innervation: intrarenal aspects and ganglia of origin	<b>735</b>
<b>Ulla C. Kopp</b>	Renorenal reflexes: Interaction between efferent and afferent renal nerve activity	<b>750</b>
<b>J. Michael Wyss, Suzanne Oparil, and Wanida Sripairojthikoon</b>	Neuronal control of the kidney: Contribution to hypertension	<b>759</b>

SYMPOSIUM OF THE CANADIAN FEDERATION OF BIOLOGICAL SOCIETIES  
SYMPOSIUM DE LA FÉDÉRATION CANADIENNE DES SOCIÉTÉS DE BIOLOGIE

**Central Peptidergic Mechanisms in Autonomic Control**  
(Mécanismes peptidergiques centraux dans le contrôle autonome)

Kingston, Ontario, Canada

June 11, 1991 / le 11 juin 1991

<b>Alastair V. Ferguson</b>	Introduction to Central Peptidergic Mechanisms in Autonomic Control	<b>772</b>
<b>Willis K. Samson, Blake D. Alexander, Karl D. Skala, F.-L. Steven Huang, and R. Jerrold Fulton</b>	Central peptidergic mechanisms controlling reproductive hormone secretion: Novel methodology reveals a role for the natriuretic peptides	<b>773</b>
<b>Alastair V. Ferguson and Katharine M. Wall</b>	Central actions of angiotensin in cardiovascular control: Multiple roles for a single peptide	<b>779</b>
<b>Quentin J. Pittman and Marshall F. Wilkinson</b>	Central arginine vasopressin and endogenous antipyreresis	<b>786</b>
<b>Mark D. Evered</b>	Investigating the role of angiotensin II in thirst: Interactions between arterial pressure and the control of drinking	<b>791</b>
<b>Abstracts of the 24th Winter Meeting of the Canadian Physiological Society</b> (Résumés de la 24 <sup>e</sup> session d'hiver de la Société canadienne de physiologie)		<b>Ai</b>

JUNE/JUIN

ARTICLES

<b>C. Brideau, C. Chan, S. Charleson, D. Denis, J. F. Evans, A. W. Ford-Hutchinson, R. Fortin, J. W. Gillard, J. Guay, D. Guévremont, J. H. Hutchinson, T. R. Jones, S. Leger, J. A. Mancini, C. S. McFarlane, C. Pickett, H. Piechuta, P. Prasit, D. Riendeau, C. A. Rouzer, P. Tagari, P. J. Vickers, R. N. Young, and W. M. Abraham</b>	Pharmacology of MK-0591 (3-[1-(4-chlorobenzyl)-3-( <i>t</i> -butylthio)-5-(quinolin-2-yl-methoxy)-indol-2-yl]-2,2-dimethyl propanoic acid), a potent, orally active leukotriene biosynthesis inhibitor	<b>799</b>
<b>Luc Ménard, Michel Laviolette, and Pierre Borgeat</b>	Studies of the inhibitory activity of MK-0591 (3-[1-(4-chlorobenzyl)-3-( <i>t</i> -butylthio)-5-(quinolin-2-yl-methoxy)-indol-2-yl]-2,2-dimethyl propanoic acid) on arachidonic acid metabolism in human phagocytes	<b>808</b>
<b>Souad Aboudrar, Dominique Desplanches, Fränzi Graber-von Bergen, Roland Favier, Ismahane Okyayuz-Baklouti, and Hans Hoppeler</b>	Effects of torbafylline on muscle atrophy: prevention and recovery	<b>814</b>
<b>M. S. Vatta, L. G. Bianciotti, A. S. Locatelli, M. L. Papouchado, and B. E. Fernández</b>	Monophasic and biphasic effects of angiotensin II and III on norepinephrine uptake and release in rat adrenal medulla	<b>821</b>
<b>Philip Traynor, William F. Dryden, and Peter A. Smith</b>	Trophic regulation of action potential in bullfrog sympathetic neurones	<b>826</b>
<b>M. G. Brunette and M. Leclerc</b>	Ca <sup>2+</sup> transport through the brush border membrane of human placenta syncytiotrophoblasts	<b>835</b>
<b>Douglas M. Templeton and Aimin Wang</b>	Conserved charge of glomerular and mesangial cell proteoglycans: possible role of amino acid-derived sulphate	<b>843</b>
<b>Donald H. Penning and Khem Jhamandas</b>	Yohimbine-precipitated clonidine withdrawal: An experimental model of the antihypertensive drug withdrawal syndrome	<b>853</b>
<b>G. A. Klug, M. Biedermann, M. E. Houston, D. Stuart, M. Mumby, and J. T. Stull</b>	Chronic low frequency stimulation reduces myosin phosphorylation in rabbit fast twitch muscle	<b>859</b>
<b>Werner J. Debertin and David K. Pomerantz</b>	Improved sensitivity of the mouse interstitial cell testosterone assay with the addition of forskolin	<b>866</b>
<b>Menashe B. Waxman, John A. Asta, Douglas A. Cameron, and Laszlo Endrenyi</b>	Vasodepressor reaction induced by inferior vena caval occlusion and isoproterenol	<b>872</b>



<b>Menashe B. Waxman, John A. Asta, and Douglas A. Cameron</b>	Localization of the reflex pathway responsible for the vasodepressor reaction induced by inferior vena caval occlusion and isoproterenol	<b>882</b>
<b>Menashe B. Waxman, Arjun D. Sharma, John Asta, and Laszlo Endrenyi</b>	The effects of sympathetic denervation on spontaneous ventricular defibrillation in the rat	<b>890</b>
<b>Louis Legault, Peter Cernacek, and Mortimer Levy</b>	Attempts to alter the heterogeneous response to ANP in sodium-retaining caval dogs	<b>897</b>
<b>Lawrence B. Oscai, Richard W. Tsika, and David A. Essig</b>	Exercise training has a heparin-like effect on lipoprotein lipase activity in muscle	<b>905</b>
<b>Robert A. Urquhart and Kenneth J. Broadley</b>	The indirect negative inotropic effects of the $P_1$ -receptor agonist, L-phenylisopropyladenosine, in guinea-pig isolated cardiac preparations: comparison with cromakalim	<b>910</b>
<b>Reza Tabrizchi and Christopher R. Triggle</b>	A comparison of the effects of acute versus chronic administration of phenoxybenzamine on pressor responses elicited by the selective $\alpha_1$ -adrenoceptor agonist cirazoline in the pithed rat preparation	<b>916</b>
<b>N. Navarro Becerra and N. I. Munaro</b>	$\gamma$ -Aminobutyric acid activity in the olfactory bulb of the rat during the sexual cycle and response to olfactory stimuli	<b>922</b>
<b>Jay H. Williams and Christopher W. Ward</b>	Reduced $Ca^{2+}$ -induced $Ca^{2+}$ release from skeletal muscle sarcoplasmic reticulum at low pH	<b>926</b>
<b>BRIEF REPORT / RAPPORT BREF</b>		
<b>Zong-Han Yu</b>	Electrolytes, protein, and lactate dehydrogenase isozymes of parotid saliva in mineralocorticoid-treated rats	<b>931</b>
<b>RAPID COMMUNICATION / COMMUNICATION RAPIDE</b>		
<b>Gerald S. Marks, Brian E. McLaughlin, Kanji Nakatsu, and James F. Brien</b>	Biotransformation of glyceryl trinitrate by rat brain homogenate	<b>935</b>

## JULY/JUILLET

## ARTICLES

<b>R. P. Green-Thompson, S. M. Kimmett, and G. S. Marks</b>	Inhibition of chick embryo hepatic uroporphyrinogen decarboxylase by components of xenobiotic-treated chick embryo hepatocytes in culture. II.	<b>939</b>
<b>M. Wilkinson, Alice Giles, and Diane A. Wilkinson</b>	$M_2$ muscarinic ( $[^3H]$ N-methyl scopolamine) binding in micropunches of rat ventricular myocardium: characterization and modification by progesterone	<b>943</b>
<b>Bodh I. Jugdutt and Mohammad I. Khan</b>	Impact of increased infarct transmural on remodeling and function during healing after anterior myocardial infarction in the dog	<b>949</b>
<b>I. Ošádalová and B. Ošádal</b>	$^{85}Sr$ uptake by the chick embryonic heart: Effect of high doses of isoproterenol	<b>959</b>
<b>Gabriela T. Pérez and Marta E. Apfelbaum</b>	Modulatory effect of steroid hormones on GnRH-induced LH secretion by cultured rat pituitary cells	<b>963</b>
<b>Thomas P. Martin and V. R. Edgerton</b>	Intrafibre distribution of succinate dehydrogenase in cat tibialis anterior motor units	<b>970</b>
<b>S. Chouinard and C. Viau</b>	Reversibility of renal tubular dysfunction in streptozotocin-induced diabetes in the rat	<b>977</b>
<b>Rania Gaspo, Louis Lamarche, Nobuharu Yamaguchi, Jacques de Champlain, and Denis Garceau</b>	Effects of clentiazem (TA-3090) and nifedipine on basal circulating catecholamine levels and on stimulation-evoked adrenal catecholamine secretion in anesthetized dogs	<b>983</b>
<b>W. Gibb and G. C. B. Randall</b>	Prostaglandin production by porcine allantochorion <i>in vitro</i> : effect of cortisol infusion <i>in vivo</i>	<b>990</b>
<b>Ikunobu Muramatsu, Adebayo Laniyonu, Graham J. Moore, and Morley D. Hollenberg</b>	Vascular actions of thrombin receptor peptide	<b>996</b>
<b>J. G. Kingma, Jr., Y. Qiu, and D. J. Hearse</b>	Influence of low-flow infusion and magnesium on tissue necrosis during regional ischemia in the canine myocardium	<b>1004</b>
<b>W. G. Paterson, M. A. B. Anderson, and N. Anand</b>	Pharmacological characterization of lower esophageal sphincter relaxation induced by swallowing, vagal efferent nerve stimulation, and esophageal distention	<b>1011</b>
<b>Herbert T. Cohen, Fumi Takemoto, Takeo Satoh, and Adrian I. Katz</b>	Renal adrenergic receptors: localization of $[^{125}I]$ prazosin binding sites along the microdissected rat nephron	<b>1016</b>
<b>Hiroyuki Arimura, Zeljko J. Bosnjak, Sumio Hoka, and John P. Kampine</b>	Catecholamine-induced changes in vascular capacitance and sympathetic nerve activity in dogs	<b>1021</b>
<b>Sumio Hoka, Hiroyuki Arimura, Zeljko J. Bosnjak, and John P. Kampine</b>	Regional venous outflow, blood volume, and sympathetic nerve activity during hypercapnia and hypoxic hypercapnia	<b>1032</b>
<b>Fatemeh Savabi and Arlene Kirsch</b>	Diabetic type of cardiomyopathy in food-restricted rats	<b>1040</b>
<b>S. M. Periyasamy</b>	Inhibition of cardiac sarcolemmal $Na^+/H^+$ antiporter by opioids	<b>1048</b>
<b>Yiming Deng and Rudolf Lang</b>	The influence of calcium on ANF release in the isolated rat atrium	<b>1057</b>

## RAPID COMMUNICATIONS / COMMUNICATIONS RAPIDES

<b>Flavio Coceani, Lois Kelsey, and Eric Seidlitz</b>	Evidence for an effector role of endothelin in closure of the ductus arteriosus at birth	<b>1061</b>
<b>M. Flezar, R. Olivenstein, A. Cantin, and S. Heisler</b>	Extracellular ATP stimulates elastase secretion from human neutrophils and increases lung resistance and secretion from normal rat airways after intratracheal instillation	<b>1065</b>

## AUGUST/AOÛT

## ARTICLES

- S. A. McCluskey, D. S. Riddick, J. E. Mackie, S. M. Kimmett, R. A. Whitney, and G. S. Marks** Inactivation of cytochrome P450 and inhibition of ferrochelatase by analogues of 3,5-diethoxycarbonyl-1,4-dihydro-2,4,6-trimethylpyridine with 4-nonyl and 4-dodecyl substituents **1069**
- Phillip F. Gardiner, Michèle Favron, and Pierre Corriveau** Histochemical and contractile responses of rat medial gastrocnemius to 2 weeks of complete disuse **1075**
- M. Hong, B. Milne, C. W. Loomis, and K. Jhamandas** *In vivo* catechol activity in the rat locus coeruleus following different nociceptive stimuli and naloxone **1082**
- Michael J. Katovich, David Pitman, and Orit Schechtman** Role of the adrenal gland in the thermal response to morphine withdrawal in rats **1090**
- C. Whiteside and D. M. Templeton** Increased microalbuminuria in diabetic rats is independent of angiotensin II or glomerular proteoglycan synthesis **1096**
- Susan Kaufman** Role of spleen in ANF-induced reduction in plasma volume **1104**
- Lynn E. Hierlihy, John L. Wallace, and Alastair V. Ferguson** Neurally mediated gastric mucosal damage in hypophysectomized rats **1109**
- Daron A. Fincham, John Clive Ellory, and James D. Young** Characterization of a novel variant of amino acid transport system asc in erythrocytes from Przewalski's horse (*Equus przewalskii*) **1117**
- M. Keelan, S. Burdick, B. Wirzba, and A. B. R. Thomson** Characterization of lipid uptake into rabbit jejunal brush border membrane vesicles **1128**
- Ryszard Grygorczyk and Michael A. Bridges** Whole-cell chloride conductances in cultured brushed human nasal epithelial cells **1134**
- C. L. Girard and J. W. Sissons** The role of migrating myoelectric complexes in the regulation of digesta transport in the preruminant calf **1142**
- S. A. Chung, G. R. Greenberg, and N. E. Diamant** Relationship of postprandial motilin, gastrin, and pancreatic polypeptide release to intestinal motility during vagal interruption **1148**
- Robert M. K. W. Lee, Michael Coughlin, Jim Tsoporis, Chiu-Yin Kwan, Yong-Yuan Guan, and Frans H. H. Leenen** The effect of neonatal treatment of rats with nerve growth factor on the blood pressure and structure of the mesenteric arteries **1154**
- R. B. Philp, P. Arora, and D. J. McIver** Effects of gaseous anesthetics and ultrashort and short-acting barbiturates on human blood platelet free cytosolic calcium: relevance to their effects on platelet aggregation **1161**
- Peter Cernacek, Louis Legault, Duncan J. Stewart, and Mortimer Levy** Specific endothelin binding sites in renal medullary collecting duct cells: lack of interaction with ANP binding and cGMP signalling **1167**
- W. S. Parkhouse** The effects of ATP, inorganic phosphate, protons, and lactate on isolated myofibrillar ATPase activity **1175**
- Jennifer Jury, Nahid Ahmedzadeh, and E. E. Daniel** A mediator derived from arginine mediates inhibitory junction potentials and relaxations in lower esophageal sphincter: an independent role for vasoactive intestinal peptide **1182**

## BRIEF REPORT / RAPPORT BREF

- Nirmal S. Basi, K. G. Thomaskutty, and Richard H. Pointer** Regulation of glucose transport in isolated adipocytes by levamisole **1190**

## RAPID COMMUNICATION / COMMUNICATION RAPIDE

- Steve Iscoe and Laurent Grélot** Regional intercostal activity during coughing and vomiting in decerebrate cats **1195**

## SEPTEMBER/SEPTEMBRE

## CRITICAL REVIEW / SYNTHÈSE CRITIQUE

- D. J. Philpott, J. D. Butzner, and J. B. Meddings** Regulation of intestinal glucose transport **1201**

## ARTICLES

- Michael L. Kreidstein, Cho Y. Pang, Lloyd N. Carlsen, and Ning Xu** Evidence for endothelium-dependent and endothelium-independent vasodilation in human skin flaps **1208**
- Abdel A. Abdel-Rahman, Robert G. Carroll, and Mahmoud M. El-Mas** Role of the sympathetic nervous system in the alcohol-guanabenz hemodynamic interaction **1217**
- I. C. Wells and D. K. Agrawal** Abnormal magnesium metabolism in two rat models of genetic hypertension **1225**
- Yi Qu, Joseph Torchia, and Amar Kumar Sen** Protein kinase C mediated activation and phosphorylation of  $\text{Ca}^{2+}$  pump in cardiac sarcolemma **1230**
- Jean Marc Renaud and Peter Light** Effects of  $\text{K}^{+}$  on the twitch and tetanic contraction in the sartorius muscle of the frog, *Rana pipiens*. Implication for fatigue *in vivo* **1236**
- Jean-François Pouliot, André Gougoux, and Richard Béliveau** Brush border membrane proteins in experimental Fanconi's syndrome induced by 4-pentenote and maleate **1247**
- Anthony K. Ho, Joshua Cheng, and Marc Girard** Differential effects of intracellular calcium elevating agents on adrenergic-stimulated cyclic nucleotide and melatonin synthesis in rat pinealocytes **1254**

- Robert M. K. W. Lee, Jim Tsoporis, and Roger R. J. Wang** Influence of chronic nadolol treatment on blood pressure and vascular changes in spontaneously hypertensive rats 1261
- Brian Rodrigues, Janice E. A. Braun, Michael Spooner, and David L. Severson** Regulation of lipoprotein lipase activity in cardiac myocytes from control and diabetic rat hearts by plasma lipids 1271
- K. A. King, J. R. Ledsome, and C. A. Courneya** Plasma atrial natriuretic factor and atrial wall stress in hypertensive and normotensive rabbits after pacing and volume expansion 1280
- P. D. Neuffer, M. H. Shinebarger, and G. L. Dohm** Effect of training and detraining on skeletal muscle glucose transporter (GLUT4) content in rats 1286

## BRIEF REPORTS / RAPPORTS BREFS

- Christopher Bevan and Frederick T. Whitman** Sensory irritation response in mice to sulfur dust 1291
- Alessandra Strümpfer, Jerry Hsiao, Ted Peng, and James Richards** Effect of lithium chloride on ornithine decarboxylase activity in rat adrenal 1293

## RAPID COMMUNICATION / COMMUNICATION RAPIDE

- Brian M. Bennett, Bernard J. McDonald, Rita Nigam, Patrick G. Long, and W. Craig Simon** Inhibition of nitrovasodilator- and acetylcholine-induced relaxation and cyclic GMP accumulation by the cytochrome P-450 substrate, 7-ethoxyresorufin 1297

## OCTOBER/OCTOBRE

## ARTICLES

- I. Nathan, G. Agam, R. Mechoulam, A. Dvillansky, and A. A. Livne** Effect of synthetic enantiomeric cannabinoids on platelet aggregation 1305
- E. K. Y. Chiu, H. Wang, and J. R. McNeill** Role of sodium and water excretion in the antihypertensive effect of vasopressin in the spontaneously hypertensive rat 1309
- Gary D. Lopaschuk and Marguerite A. Spafford** Differences in myocardial ischemic tolerance between 1- and 7-day-old rabbits 1315
- Gordon J. Bell, Kathy Ayer, Tessa Gordon, Suresh Devashayam, and Thomas P. Martin** Recovery of rat tibialis anterior motor unit properties following partial denervation 1324
- Lorrie A. Kirshenbaum and Pawan K. Singal** Antioxidant changes in heart hypertrophy: significance during hypoxia-reoxygenation injury 1330
- Karen Harrington, Arie Bomzon, Keith A. Sharkey, Joseph S. Davison, and Eldon A. Shaffer** Differential sensitivities of the sphincter of Oddi and gallbladder to cholecystokinin in the guinea pig: their role in transsphincteric bile flow 1336
- Angelo Tremblay, Serge Coveney, Jean-Pierre Després, André Nadeau, and Denis Prud'homme** Increased resting metabolic rate and lipid oxidation in exercise-trained individuals: evidence for a role of  $\beta$ -adrenergic stimulation 1342
- M. J. Delgado, A. L. Alonso-Gómez, and M. Alonso-Bedate** Role of environmental temperature and photoperiod in regulation of seasonal testicular activity in the frog, *Rana perezi* 1348
- Kevin K. McCully, Krista Vandeborne, Kenny DeMeirleir, Joel D. Posner, and John S. Leigh, Jr.** Muscle metabolism in track athletes, using  $^{31}\text{P}$  magnetic resonance spectroscopy 1353
- Margaret M. Tropea, Consuelo M. Munoz, and L. M. Fredrik Leeb-Lundberg** Bradykinin binding to B2 kinin receptors and stimulation of phosphoinositide turnover and arachidonic acid release in primary cultures of cells from late pregnant rat myometrium 1360
- G. N. Luheshi and M. A. Zar** Effect of streptozotocin diabetes on motor and inhibitory transmission in rat anococcygeus 1372
- P. Boisvert, G. R. Brisson, F. Péronnet, and R. Gareau** Acute administration of bromocriptine abolishes the hyperprolactinemic response induced by submaximal exercise in man 1379
- Peter M. Melnyk, Lee M. Sanford, and Bernard Robaire** Moderate increases in peripheral blood estradiol concentration in the adult ram do not directly inhibit testosterone secretion 1384
- Mitat Koz, Deniz Erbaş, Ayşe Bilgihan, and Aysel Arıcıoğlu** Effects of acute swimming exercise on muscle and erythrocyte malondialdehyde, serum myoglobin, and plasma ascorbic acid concentrations 1392
- Alicia Sue-Tang, Alan D. Bocking, A. Nigel Brooks, Stuart Hooper, Susan E. White, Ross A. Jacobs, Laurence J. Fraher, and John R. G. Challis** Effects of restricting uteroplacental blood flow on concentrations of corticotrophin-releasing hormone, adrenocorticotrophin, cortisol, and prostaglandin  $\text{E}_2$  in the sheep fetus during late pregnancy 1396
- Uwe Ackermann, Deborah Jean Atchison, and Lin P'ing Choo** Atrial natriuretic peptide inhibits compensatory responses when cardiac performance is depressed 1403
- Angèle Parent, Paul V. Nguyen, Xiao Ping Yang, and Ernesto L. Schiffrin** Inositol phosphate production in response to  $[\text{Arg}^8]$ vasopressin, endothelin 1, and prostaglandin  $\text{F}_{2\alpha}$  in rat aorta and mesenteric arteries 1408
- Christine Forster, Giulia Larosa, and Paul W. Armstrong** Impact of enalapril therapy on *in vitro* coronary artery responsiveness in pacing-induced heart failure 1417
- F. Christinck, E. E. Daniel, and J. E. T. Fox-Threlkeld** Inhibitory and excitatory mechanisms of neurotensin action in canine intestinal circular muscle *in vitro* 1423



## BRIEF REPORT / RAPPORT BREF

- Mortimer Levy** Portal venous infusions of L-glutamine in anaesthetized dogs do not influence renal function 1432

## ERRATUM

- N. L. Stephens, A. Halayko, and H. Jiang** Erratum: Normalization of contractile parameters in canine airway smooth muscle: morphological and biochemical 1436

## NOVEMBER/NOVEMBRE

## ARTICLES

- Mitchell L. Halperin, Jeannette M. Goguen, and Ching-Bun Chen** Fuel selection and the production of ammonium by the kidney: studies using insulin 1437
- Cynthia A. Pfeifer, Robert A. Furilla, Karsten Gronert, DeNa D. Goss, and Ceil A. Herman** Tissue distribution, elimination, and metabolism of [<sup>3</sup>H]leukotriene C<sub>4</sub> by the conscious marine toad, *Bufo marinus* 1442
- Amir Pelleg and Carl M. Hurt** Effects of N<sup>6</sup>-endonorbornan-2-yl-9-methyladenine, N0861, on negative chronotropic and vasodilatory actions of adenosine in the canine heart *in vivo* 1450
- John W. Downie and J. Andrew Armour** Mechanoreceptor afferent activity compared with receptor field dimensions and pressure changes in feline urinary bladder 1457
- Soter Dai, Heather Fraser, and John H. McNeill** Effects of deoxycorticosterone acetate on glucose metabolism in nondiabetic and streptozotocin-diabetic rats 1468
- R. Burstein, A. Zissholtz, Y. Zick-Bachar, Y. Epstein, Y. Shapiro, and E. Karnieli** Glucose uptake by adipocytes of obese rats: effect of one bout of acute exercise 1473
- Kamel S. Kamel, Surinder Cheema-Dhadli, and Mitchell L. Halperin** Is accelerated oxidation of lactate required for dichloroacetate to lower the level of lactate in blood? 1477
- Karen L. Madsen, Jonathan B. Meddings, and Richard N. Fedorak** Basolateral membrane lipid dynamics alter Na-K ATPase activity in rabbit small intestine 1483
- M. Boivin, M. Riberdy, M.-C. Raymond, L. Trudel, and P. Poitras** Motilin and the postprandial motility of the antrum 1491
- Robert M. K. W. Lee, Roop B. Conyers, and Chiu-Yin Kwan** Incidence of multinucleated and polyploid aortic smooth muscle cells cultured from different age groups of spontaneously hypertensive rats 1496
- Viviana A. Catania, Marcelo G. Luquita, Enrique J. Sánchez Pozzi, Alejandro M. Ferri, and Aldo D. Mottino** Absence of hepatic *p*-nitrophenol UDP-glucuronosyltransferase induction by spironolactone in male rats: possible involvement of testosterone 1502
- Cheryl Rogers and Simon Lemaire** Characterization of [<sup>3</sup>H]desmethyylimipramine binding in bovine adrenal medulla: interactions with  $\sigma$ - and (or) phencyclidine-receptor ligands 1508

## BRIEF REPORTS / RAPPORTS BREFS

- B. Skrajny, R. S. Hannah, and S. H. Roth** Low concentrations of hydrogen sulphide alter monoamine levels in the developing rat central nervous system 1515
- Catherine Chan and Jeffrey Lejeune** Reduced sensitivity to dexamethasone of pancreatic islets from obese (*fa/fa*) rats 1518
- T. Fushiki, T. Kano, K. Ito, C. Hirofujii, K. Inoue, T. Moritani, and E. Sugimoto** Effects of chronic hypoxia on the whole-body insulin action in rats 1522
- D. A. Wigle, B. M. Bennett, D. B. Jennings, I. R. Sarda, T. G. Flynn, and S. C. Pang** Biological effects of rat iso-atrial natriuretic peptide and brain natriuretic peptide are indistinguishable from each other 1525
- Laura Jill McCutcheon, Colin Robert Cory, Linda Nowack, Hua Shen, Medhi Mirsalami, Rudolf Lahucky, Lubomir Kovac, Michael O'Grady, Rhonnie Horne, and Peter James O'Brien** Respiratory chain defect of myocardial mitochondria in idiopathic dilated cardiomyopathy of Doberman pinscher dogs 1529

## DECEMBER/DÉCEMBRE

## ARTICLES

- M. Bachoo and C. Polosa** An AF-DX 116 sensitive inhibitory mechanism modulates nicotinic and muscarinic transmission in cat superior cervical ganglion in the presence of anticholinesterase 1535
- Zhen Yu and John H. McNeill** Blood pressure and heart rate response to vasoactive agents in conscious diabetic rats 1542
- Louis Legault, Paul van Nguyen, Donna L. Holliwell, and Frans H. H. Leenen** Hemodynamic and plasma atrial natriuretic factor responses to cardiac volume loading in young versus older normotensive humans 1549
- Rekia Belahsen and Yves Deshaies** Modulation of lipoprotein lipase activity in the rat by the  $\beta_2$ -adrenergic agonist clenbuterol 1555

<b>Mortimer Levy and Peter Cernacek</b> Modification of the renal response to endopeptidase inhibition and atrial natriuretic peptide infusion in normal dogs	1563
<b>L. W. Kline and P. K. T. Pang</b> Calcitonin gene related peptide relaxes cholecystokinin-induced contraction in guinea pig gallbladder strips <i>in vitro</i>	1571
<b>Michelle P. Bendeck and B. Lowell Langille</b> Changes in blood flow distribution during the perinatal period in fetal sheep and lambs	1576
<b>Soter Dai and John H. McNeill</b> Effects of fructose loading in streptozotocin-diabetic and non-diabetic rats	1583
<b>Flavio Coccani, Jodi Lees, Jane Redford, and Isis Bishai</b> Interleukin-1 receptor antagonist: effectiveness against interleukin-1 fever	1590
<b>Yoshihito Inoue, Keiichi Shimamura, and Nicholas Sperelakis</b> Oxytocin actions on voltage-dependent ionic channels in pregnant rat uterine smooth muscle cells	1597
<b>R. S. Neuman and G. Zebrowska</b> Serotonin (5-HT <sub>2</sub> ) receptor mediated enhancement of cortical unit activity	1604
<b>Leah C. Knickle and John R. Bend</b> Dose-dependent, mechanism-based inactivation of cytochrome P450 monooxygenases <i>in vivo</i> by 1-amino-benzotriazole in liver, lung, and kidney of untreated, phenobarbital-treated, and $\beta$ -naphthoflavone-treated guinea pigs	1610
<b>Na Su and Njanoor Narayanan</b> Enhanced chronotropic and inotropic responses of rat myocardium to cholinergic stimulus with aging	1618
<b>R. S. McKelvie, M. I. Lindinger, N. L. Jones, and G. J. F. Heigenhauser</b> Erythrocyte ion regulation across inactive muscle during leg exercise	1625
<b>M. F. Mottola, J. H. Plust, P. D. Christopher, and C. L. Schachter</b> Effects of exercise on maternal glycogen storage patterns and fetal outcome in mature rats	1634
<b>E. V. YoungLai and E. C. Todoroff</b> The pituitary gonadotropin-releasing hormone (GnRH) receptor of the female rabbit: characterization and developmental aspects	1639
<b>Note of appreciation / Note de reconnaissance</b>	iii
<b>Author index for Volume 70 / Index des auteurs pour le volume 70</b>	AI-1
<b>Subject index for Volume 70 / Index des matières pour le volume 70</b>	SI-1
<b>Contents for Volume 70 / Sommaire pour le volume 70</b>	C-1

### Volume 70 Supplement

#### SYMPOSIA OF THE INTERNATIONAL BRAIN RESEARCH ORGANIZATION SYMPOSIUM DE L'ORGANISATION INTERNATIONALE DE RECHERCHE SUR LE CERVEAU

##### The Physiology, Pharmacology, and Biophysics of Ganglionic Transmission (Physiologie, pharmacologie et biophysique de la transmission ganglionnaire)

University of Alberta, Edmonton, Alta., Canada  
August 12-14, 1991 / 12-14 août 1991

<b>Peter A. Smith, William F. Dryden, Canio Polosa, and Vladimir I. Skok</b> Introduction: The physiology, pharmacology, and biophysics of ganglionic transmission	S2
<b>Benjamin Libet</b> Introduction to slow synaptic potentials and their neuromodulation by dopamine	S3
<b>Peter A. Smith, Hsinyo Chen, Dmitry E. Kurenyy, Alexander A. Selyanko, and Jeffrey A. Zidichouski</b> Regulation of the M current: transduction mechanism and role in ganglionic transmission	S12
<b>John P. Horn</b> The integrative role of synaptic cotransmission in the bullfrog vasomotor C system: evidence for a synaptic gain hypothesis	S19
<b>M. Bachoo and C. Polosa</b> Preganglionic axons from the third thoracic spinal segment fail to induce long-term potentiation in the superior cervical ganglion of the cat	S27
<b>Lukasz M. Konopka, Laura A. Merriam, Jean C. Hardwick, and Rodney L. Parsons</b> Aminergic and peptidergic elements and actions in a cardiac parasympathetic ganglion	S32
<b>Haruo Kobayashi, Sumiko Mochida, and Susumu Y. Takahashi</b> Intracellular transduction mechanisms for the slow synaptic events	S44
<b>Takashi Akasu and Takayuki Tokimasa</b> Cellular metabolism regulating H and M currents in bullfrog sympathetic ganglia	S51
<b>Stephen W. Jones and Keith S. Elmslie</b> Separation and modulation of calcium currents in bullfrog sympathetic neurons	S56
<b>Kenji Kuba, Mitsuo Nohmi, and Shao-Ying Hua</b> Intracellular Ca <sup>2+</sup> -dynamics in response to Ca <sup>2+</sup> influx and Ca <sup>2+</sup> release in autonomic neurones	S64
<b>E. F. Stanley</b> The calyx-type synapse of the chick ciliary ganglion as a model of fast cholinergic transmission	S73
<b>Vladimir I. Skok</b> Molecular mechanisms of open-channel blockade in nicotinic acetylcholine receptors of autonomic ganglia neurons	S78
<b>N. J. Dun, S. Y. Wu, E. Shen, T. Miyazaki, S. L. Dun, and C. Ren</b> Synaptic mechanisms in sympathetic preganglionic neurons	S86

- Hiroe Inokuchi, Megumu Yoshimura, Canio Polosa, and Syogoro Nishi** Adrenergic receptors ( $\alpha_1$  and  $\alpha_2$ ) modulate different potassium conductances in sympathetic preganglionic neurons **S92**

**Ions, Water, and Energy in Brain Cells**  
(Ions, eau et énergie dans les cellules cérébrales)

University of Saskatchewan, Saskatoon, Sask., Canada  
August 10–14, 1991 / 10–14 août 1991

MAIN INTRODUCTION / INTRODUCTION D'OUVERTURE

- Leif Hertz, William E. Code, and Eva Sykova** Ions, water, and energy in brain cells: A synopsis of interrelations **S100**

*Energy metabolism and effects of energy depletion or exposure to glutamate*  
(*Métabolisme énergétique et effets d'une diminution d'énergie ou d'une exposition au glutamate*)

- Louis Sokoloff** Introduction I: Energy metabolism and effects of energy depletion or exposure to glutamate **S107**  
**Sami I. Harik** Changes in the glucose transporter of brain capillaries **S113**  
**John Edmond** Energy metabolism in developing brain cells **S118**  
**James C. K. Lai** Oxidative metabolism in neuronal and non-neuronal mitochondria **S130**  
**Raymond A. Swanson** Physiologic coupling of glial glycogen metabolism to neuronal activity in brain **S138**  
**Leif Hertz and Liang Peng** Energy metabolism at the cellular level of the CNS **S145**  
**Adelbert Ames III** Energy requirements of CNS cells as related to their function and to their vulnerability to ischemia: a commentary based on studies on retina **S158**  
**Myron Rosenthal and Thomas J. Sick** Glycolytic and oxidative metabolic contributions to potassium ion transport in rat cerebral cortex **S165**  
**Ken-Ichiro Katsura, Anders Ekholm, and Bo K. Siesjö** Coupling among changes in energy metabolism, acid–base homeostasis, and ion fluxes in ischemia **S170**  
**Wolfgang Walz** Coupling of metabolism and electrical activity in cortical astrocytes **S176**  
**Bruce R. Ransom and Daniel M. Philbin, Jr.** Anoxia-induced extracellular ionic changes in CNS white matter: the role of glial cells **S181**  
**Maria Erecińska and Ian A. Silver** Relationships between ions and energy metabolism: cerebral calcium movements during ischaemia and subsequent recovery **S190**  
**J. Arens, J. Stabel, and U. Heinemann** Pharmacological properties of excitatory amino acid induced changes in extracellular calcium concentration in rat hippocampal slices **S194**  
**A. H. Cornell-Bell, P. G. Thomas, and J. M. Caffrey**  $\text{Ca}^{2+}$  and filopodial responses to glutamate in cultured astrocytes and neurons **S206**

*Potassium and sodium transport and pH regulation*  
(*Transport potassique et sodique et régulation du pH*)

- Torben Clausen** Introduction II: Potassium and sodium transport and pH regulation **S219**  
**H. Sontheimer** Astrocytes, as well as neurons, express a diversity of ion channels **S223**  
**Andreas Reichenbach, Andre Henke, Wolfgang Eberhardt, and Winfried Reichelt**  $\text{K}^+$  ion regulation in retina **S239**  
**G. G. Somjen, P. G. Aitken, G. L. Czéh, O. Herreras, J. Jing, and J. N. Young** Mechanisms of spreading depression: a review of recent findings and a hypothesis **S248**  
**Kathleen J. Sweadner** Overlapping and diverse distribution of Na–K ATPase isozymes in neurons and glia **S255**  
**Wolfgang Walz** Role of Na/K/Cl cotransport in astrocytes **S260**  
**H. Steve White, Sien Yao Chow, Y. C. Yen-Chow, and Dixon M. Woodbury** Effect of elevated potassium on the ion content of mouse astrocytes and neurons **S263**  
**Joseph C. LaManna, J. Keven Griffith, Boris R. Cordisco, Chii-Wann Lin, and W. David Lust** Intracellular pH in rat brain *in vivo* and in brain slices **S269**  
**W.-R. Schlue and R. Dörner** The regulation of pH in the central nervous system **S278**  
**M. Chesler and J. C. T. Chen** Alkaline extracellular pH shifts generated by two transmitter-dependent mechanisms **S286**  
**Pekka E. Møllergård, Yi-Bing Ouyang, and Bo K. Siesjö** The regulation of intracellular pH in cultured astrocytes and neuroblastoma cells, and its dependence on extracellular pH in a  $\text{HCO}_3^-$ -free solution **S293**  
**E. Syková, P. Jendelová, J. Svoboda, and A. Chvátal** Extracellular  $\text{K}^+$ , pH, and volume changes in spinal cord of adult rats and during postnatal development **S301**

*Cell swelling and volume regulation*  
(*Gonflement des cellules et régulation volumique*)

<b>Else K. Hoffmann</b>	Introduction III: Cell swelling and volume regulation	<b>S310</b>
<b>Charles Nicholson</b>	Quantitative analysis of extracellular space using the method of TMA <sup>+</sup> iontophoresis and the issue of TMA <sup>+</sup> uptake	<b>S314</b>
<b>H. K. Kimelberg, E. R. O'Connor, P. Sankar, and C. Keese</b>	Methods for determination of cell volume in tissue culture	<b>S323</b>
<b>Gerd-Helge Schneider, Alexander Baethmann, and Oliver Kempfski</b>	Mechanisms of glial swelling induced by glutamate	<b>S334</b>
<b>Bernhard H. J. Juurlink, Ye Chen, and Leif Hertz</b>	Use of cell cultures to differentiate among effects of various ischemia factors on astrocytic cell volume	<b>S344</b>
<b>James E. Olson and Julie A. Evers</b>	Correlations between energy metabolism, ion transport, and water content in astrocytes	<b>S350</b>
<b>Arne Schousboe and Herminia Pasantes-Morales</b>	Role of taurine in neural cell volume regulation	<b>S356</b>
<b>A. S. Bender, J. T. Neary, and M. D. Norenberg</b>	Involvement of second messengers and protein phosphorylation in astrocyte swelling	<b>S362</b>
<b>Ye Chen, J. Robert McNeill, Ivan Hajek, and Leif Hertz</b>	Effect of vasopressin on brain swelling at the cellular level: do astrocytes exhibit a furosemide-vasopressin-sensitive mechanism for volume regulation?	<b>S367</b>

